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(54) **METHOD FOR DELIVERING MESSAGES**

VERFAHREN ZUR ABLIEFERUNG VON NACHRICHTEN

PROCEDE DE REMISE DE MESSAGES

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Description

[0001] The present invention relates to a method for delivering messages in a communication network, as well as to a messaging functionality device and a terminal device therefor.

[0002] The 3rd Generation Partnership Project (3GPP) currently discusses the issue of a multimedia messaging service center (MMSC) as a network element in a communication network, e.g. for the use in the general packet radio system (GPRS) and the universal mobile telecommunications system (UMTS). Unfortunately, most of it is still undefined, like the management of the capabilities and the user profile of the terminal.

[0003] The functionality of a multimedia messaging service center, from the technical viewpoint, provides a non-realtime service which operates partly in store-and-forward fashion. Additionally, multimedia messages are sent using the GPRS air interface, for example, and the contents of the messages can be text, images, speech, video clips or the like, or any arbitrary combination of these. For example, these contents can be delivered from one mobile station to another using this multimedia messaging service.

[0004] According to the service description of multimedia messaging, the content and length of the message is in principle unlimited. However, due to the various different types of terminals (e.g. mobile terminals), a large number of different capabilities of these terminals is present in the network. Consequently, each of these terminals inevitably causes its own specific restrictions and limitations, in particular with respect to the possibility of handling a multimedia message.

[0005] For example, the available storage capacity is limited and may differ between different terminals, and thus, not all of the terminals can be able to receive all possible contents. Furthermore, the capabilities of a single terminal may change dynamically, e.g. if the terminal has already received and stored a message, the remaining memory will be reduced. Similarly, the terminal can be connected or disconnected to or from other devices like laptops etc.

[0006] Moreover, in addition to the limitations caused by the terminal capabilities, the users may want to create or modify their own user profile, thereby also resulting in special restrictions. For example, a user may want to have certain types of multimedia messages to be stored in the multimedia messaging service center, forwarded to an internet address or discarded. These user defined restrictions can be based for example on the size of the multimedia message, the content-type or the sender.

[0007] As can be seen from the foregoing, there arises the problem, that certain parts of the multimedia message or even the whole message may not be managed by the recipient terminal due to a lack of capabilities to receive, store, process or display the multimedia message. Consequently, the uncontrolled transmission of

multimedia messages can cause serious problems up to system failures in the terminals which may lead to at least a partly breakdown of the terminal functionality, thus being off communication.

[0008] Moreover, document WO 98/00787 discloses an e-mail system implemented on a server having a network connection which receives and forwards e-mail messages based on subscriber-supplied criteria. When a message is received addressed to the subscriber, characteristics of the message, such as existence of and size of attachments, are compared to characteristics previously supplied by the subscriber. If a match is found, the subscriber is notified, such as by a page to a pager carried by the subscriber, of the message and the nature of the match. Facility is provided at the server for the subscriber to then call the server, log on, and provide instructions for forwarding the matched message. Forwarding may be to such as handheld device or a notebook computer operated by the subscriber, or to a mailbox of mailboxes on other servers, or any combination. A subscriber is then in control of points of delivery of incoming e-mail messages.

[0009] Furthermore, document WO 99/06915 defines a message processing and forwarding system for processing electronic messages in digital format received over a computer communication path or network, and forwarded over a telephone circuit switched network to user's receiver, such as a pager. A content processor in a message server processes the received digital message in accordance with knowledge of the receiver's capabilities and user-configured message filtering information to create a customized second message suitable for handling by the user's receiver at a remote physical location. Also, the system defines a distributed architecture for global paging, including multiple redundancy, to yield a robust system. In a preferred embodiment, the original digital message is part of an e-mail message received and forwarded through a conventional computer communication network (111) such as the Internet.

[0010] Therefore, it is an object of the present invention to provide a method for delivering messages in a communication network consisting of at least one terminal and a messaging functionality which is free from the above drawbacks. Furthermore, a messaging functionality device and a terminal device adapted therefor are to be provided.

[0011] According to the present invention, this object is achieved by what is set forth in the appended independent claims.

[0012] Advantageous further developments of the present invention are as set out in the respective dependent claims.

[0013] Hence, it is an advantage of the present invention that the handling of the messages is based on the capabilities of the recipient terminal and the user profile of the corresponding subscriber. Accordingly, it is possible to correspondingly handle each message and

each part of this message. In conclusion, failures or functionality breakdowns of the terminal are no longer possible and the method according to the invention further provides a large scope for the subscriber for a flexible and free participation in the network.

[0014] Preferred embodiments of the present invention are described herein below in detail by way of example with reference to the accompanying drawings. In which:

Fig. 1 shows a schematic diagram of the basic signaling sequence for transmitting a multimedia message between a multimedia messaging service center and a recipient terminal according to a first embodiment of the present invention;

Fig. 2 shows a flow-chart illustrating an example for the functionality implemented at the multimedia messaging service center after receiving a new mobile terminated multimedia message according to a second embodiment of the present invention; and

Fig. 3 shows another flow-chart illustrating an example for the functionality implemented at the terminal after receiving an MMSNotify message according to the second embodiment of the present invention.

[0015] According to the present invention, a submission of a multimedia message as an example for a message to be delivered in a communication network is handled according to capabilities and a user profile of a recipient terminal like for example a mobile station. The decision how to handle the submission is based on the circumstance that content(s), size and type(s) of the multimedia message, the capabilities of the terminal, and the user profile of a subscriber related to said terminal are available to respective decision means.

[0016] A handling of those messages to be delivered will be done in another element of the communication network, i.e. a network device having a messaging functionality implemented. During the following description of the preferred embodiments of the invention, the description will be made by referring to the example of a multimedia messaging service center as such a network device having implemented the messaging functionality and by referring to the example of a multimedia message as a delivered message. Nevertheless, it is to be noted that these examples are by no way limiting. Namely, also a monomedia message could be delivered and the message functionality need not be implemented in a single network device such as a multimedia messaging service center, but can also be a distributed functionality.

[0017] With respect to the above mentioned decision, for the sake of explanation, the multimedia message can be regarded as multimedia messaging service center originated while the terminal capabilities and the user

profile can be regarded as being inherent to a respective terminal. Hence, information has to be transmitted in either way to enable a decision.

[0018] Further, for the sake of convenience, it would be appropriate if the decision is automated and optimized depending on the parameters provided by the terminal and the user.

[0019] Since the multimedia message can have a certain format, multiple parts (segments), different contents (text, images, speech, videos, etc.), a different size, or a sender identity, it is apparent that it is dependent on the capabilities of the recipient terminal and the currently defined user profile, whether the terminal is able to receive, display or process the multimedia message, and further, dependent on whether the subscriber wishes to do so.

[0020] Consequently, the result of the decision as to how to handle the multimedia message can be that it shall be delivered completely, in part or modified, that it shall be discarded, stored in the multimedia messaging service center or forwarded, for example, to an internet email-address. Besides, the storage of the multimedia message in the multimedia messaging service center will in the most cases be limited to a certain time period, since there is presumably no unlimited memory available in the multimedia messaging service center (consequently, the MMSC may inform the subscriber by a respective notification about the expiry of the time period before erasing the stored message). If the multimedia message shall only be delivered in part, it is possible that also the not delivered parts are stored, forwarded or discarded. The case of a modification of the multimedia message might usually be the conversion of the multimedia message from one format to another, but also a compression or any other kind of processing the data shall be understood by this expression. As a result, a multimedia message which is not as such divided into parts can be segmented by this processing. With regard to the several possibilities of how to handle the submission of the multimedia message, the result of the decision might finally also be a respective combination of the items discussed above.

[0021] Apart from that, if the multimedia messaging service center is designated as a new network element for the general packet radio and universal mobile telecommunications systems, the data transmission will most likely be performed with protocol data units in non-realtime by use of the respective other network elements according to said systems, which other network elements are omitted from the description of the present invention for the sake of distinctness.

First Embodiment

[0022] According to a first embodiment of the present invention, the decision concerning the selection of the delivery of a multimedia message is made in the multimedia messaging service center (MMSC). The basic

idea for this approach resides in the fact that, after a new multimedia message has been received, the multimedia messaging service center is immediately able to decide which type of delivery has to be selected. Stated in other words, the multimedia messaging service center acts as a pre-filter for the terminal.

[0023] To provide such a functionality, the terminal capabilities and the current user profile have to be stored in the multimedia messaging service center. Furthermore, this information has to be updated under certain conditions. If these information (terminal capabilities and user profile) and the imparted multimedia messaging service center are never changed at all, the information has to be submitted and stored once and never to be updated. Of course, these prerequisites are nearly never met. Hence, the initial information and the updates thereof have to be submitted to the multimedia messaging service centers in order to keep the information stored therein valid.

[0024] This information can include a display type of said terminal, a keyboard type of said terminal, codecs supported by said terminal, a memory size of said terminal, an electrical connection of said terminal to other devices, an external accessory attachment to said terminal or the like, and of course a current user profile.

[0025] There are several possible conditions when to submit the information from the terminal to the multimedia messaging service center and the possibility of updating is not limited to only one condition. However, the update should be coupled to the necessity to update, or at least to the possibility of submitting the information with other data (this can be any signaling sequence between these two network elements) that has to be submitted, in order to avoid a cluttering of traffic. Consequently, the condition when the terminal starts its signaling sequence to submit the information is predetermined. This condition can be a login of said terminal into said network, a change of connection conditions of said terminal, a context activation or the change of a context condition, a user profile creation or modification, a terminal originated traffic or a terminal terminated traffic, a request of said multimedia messaging service center, a notification of said multimedia messaging service center concerning the presence and/or the contents of a new multimedia message to said terminal, or the like.

[0026] With reference to Fig. 1, the signaling sequence for submitting the information about the capabilities of the terminal and the current user profile is illustrated by the example of submitting the information upon the predetermined condition of context activation.

[0027] Consequently, in a first step S11, a terminal MS such as a mobile station requests a context activation to the multimedia messaging service center MMSC via a support node SN. With this request for context activation, the terminal MS submits simultaneously its capabilities CAP and current user profile UP. According to examples of the current network being the GPRS or UMTS, the whole signaling shown in Fig. 1 can take

place by using protocol data units PDU.

[0028] After this transmission has been completed, the multimedia messaging service center MMSC stores the user profile UP of the terminal MS. Due to the capabilities of the multimedia messaging service center, it may be possible or necessary to adapt the user profile UP of the terminal MS within the range of the capabilities CAP of the terminal MS. However, the user may inhibit such amendments of his preferred user profile. The storage of the user profile UP and its eventual processing is done in a step S12.

[0029] In a third step S13 at least the acknowledgement of the context activation is submitted from the multimedia messaging service center MMSC to the terminal MS via the support node SN.

[0030] However, if a multimedia message MM for the terminal MS is currently present in the multimedia messaging service center MMSC, there will be a step S14 before step S13, wherein this multimedia message MM is handled according to the user profile UP stored in the multimedia messaging service center MMSC. The handling of the multimedia message MM corresponds to the result of a decision process which is based on the capabilities CAP and the user profile UP of the terminal MS which are now stored in the multimedia messaging service center MMSC. The possible results of this decision process are discussed above in detail and it is mentioned again that according to the first embodiment, this decision is made by the multimedia messaging service center MMSC.

[0031] According to the result of this decision, the handling of the multimedia message MM may require a processing of the data of the multimedia message MM (e.g. in the cases of a modified or a partly deliverance) or not, as is mentioned above. In any case, if at least parts of the multimedia message MM have to be submitted to the terminal MS, this is done in the step S13 together with the submission of the context activation acknowledgement.

[0032] As mentioned before, the example depicted in Fig. 1 is given by way of illustration only, while the first embodiment is not limited thereto. Consequently, a respective adaptation of the process shown in Fig. 1 to the other possibilities according to the first embodiment as described above is fully apparent to those skilled in the art.

Second Embodiment

[0033] Apart from the solution according to the first embodiment, there is the alternative to maintain the terminal capabilities and user profile information only at the terminal side and consequently, to take the decision concerning the selection of the delivery of a multimedia message by the terminal.

[0034] Therefore, the basic idea of the second embodiment resides in that the terminal capabilities and user profile information is stored in the terminal, e.g. in the

terminal equipment or, in the case of a mobile terminal, in the SIM or in both. Due to this, the decision regarding the delivery of a multimedia message is taken in the terminal.

[0035] The functionality of the multimedia messaging service center and of the terminal according to the second embodiment are now described with reference to Fig. 2 and Fig. 3.

[0036] Fig. 2 illustrates an example of the functionality of the multimedia messaging service center MMSC according to this embodiment upon receipt of a new mobile terminated multimedia message MM. As can be gathered therefrom, the multimedia messaging service center MMSC automatically sends a special control message MMSNotify in a step S21 to the terminal MS after it has received a new multimedia message MM (step S20). The MMSNotify message contains information about the actual multimedia message MM such as the total size of the message, the content(s), the content type(s), a human readable description and so on.

[0037] On the basis of the stored information about the terminal capabilities CAP and its current user profile UP, the terminal MS now processes the information included in the MMSNotify message and accordingly decides how to handle the multimedia message MM. Based on this decision process, the terminal MS sends a corresponding reply message to the multimedia messaging center MMSC, which is received by the multimedia messaging service center MMSC in a step S22. This process is illustrated by way of example in Fig. 3, which will be described herein below.

[0038] It is noted that the present invention does not restrict the means by which the MMSNotify message is delivered to the terminal MS. For example, the multimedia messaging service center MMSC could send the MMSNotify message as a special SMS message, which is then parsed by the terminal MS, or the multimedia messaging service center MMSC could use a specific bearer (e.g. a control channel) dedicated to multimedia messaging service.

[0039] Anyway, the signaling sequence according to the second embodiment for the exchange of messages and information, respectively, is based upon the following principle. Upon receipt of the MMSNotify message, the terminal MS submits the MMSResultRequest message as a reply, which is received by the multimedia messaging service center MMSC in the step S22. The possible MMSResultRequest messages do, however, differ from each other due to the result of the decision process. Hence, the MMSResultRequest can be a MMSDeliverReq, a MMSStoreReq, a MMSForwardReq or a MMSDiscardReq, for example.

[0040] Hence, in a step S23, the multimedia messaging service center MMSC checks if the reply of the terminal MS is the MMSStoreReq message, and in case of "yes", the multimedia message MM is stored in the multimedia messaging service center in a step S26. In case of "no" the process proceeds further to the step

S24 to check whether the reply is the MMSDeliverReq message.

[0041] If the MMSDeliverReq message was replied by the terminal MS, the process flows to a step S27, wherein the multimedia messaging service center MMSC checks the MMSDeliverReq message, whether the multimedia message shall be delivered partly or completely. The step S29 shown in Fig. 2 represents the case of a partly deliverance of the multimedia message MM to the terminal MS, followed by the above mentioned step S26, wherein at least the undelivered parts of the multimedia message MM are stored in the multimedia messaging service center MMSC. In contrast thereto does the step S210 represent the case of a completely deliverance of the multimedia message MM to the multimedia messaging service center MMSC, followed by a step S211, wherein the multimedia message MM is removed from the multimedia messaging service center MMSC after the deliverance.

[0042] If the MMSDeliverReq message was not replied by the terminal MS, there is checked in a step S25 of the process, whether the MMSForwardReq message was replied, and if not, it is assumed that the MMSDiscardReq message is present and the multimedia message MM is removed from the multimedia messaging service center MMSC according to the step S211. In case the MMSForwardReq message is present, the multimedia message MM is first forwarded in a step S28 to a destination given by the MMSForwardReq message, before it is removed from the multimedia messaging service center MMSC in the step S211.

[0043] Now the functionality of the terminal MS after receiving an MMSNotify message in a step S30 according to the step S21 of Fig. 2 is described with reference to Fig. 3.

[0044] Specifically, the terminal MS checks its capabilities CAP and user profile UP in a step S31, followed by the corresponding decision steps S32-S35. As can be seen from Fig. 3, the choice to leave the decision to the user, which is not part of the present invention, is included as an option corresponding to the step S32. In case the user profile UP is set such that the user shall decide on the delivery of a multimedia message MM, the result of his input is carried further to the steps S33-S35. When the decision is done automatically, according to the second embodiment of the present invention, the terminal MS decides due to its user profile UP and capabilities CAP how to handle the multimedia message MM present in the multimedia messaging service center MMSC. Anyway, also in this case the result is carried further to the steps S33-S35.

[0045] The several choices for the terminal MS how to decide on the delivery of the multimedia message MM are discussed above, and some of these are shown in Fig. 3 as explanatory examples. That is, in step S33 the terminal checks whether the result is to retrieve the multimedia message MM partly or completely, and if this is the case, a step S37 follows, wherein the MMSDeliver-

Req message is sent to the multimedia messaging service center MMSC. If the multimedia message MM shall not be retrieved, but the result is checked in a step S34 that it is to be forwarded, there follows a step S38 to send the MMSForwardReq message to the multimedia messaging service center MMSC. In case the result is not to forward the message, the process flows to step S35 to check whether the result is to have the multimedia message MM to be stored in the multimedia messaging service center MMSC. If this is true, the step S39 follows which includes the sending of the MMSStoreReq message to the multimedia messaging service center MMSC, if it is not true, the step S40 follows which includes the sending of the MMSDiscardReq message to the multimedia messaging service center MMSC, assuming that this is the result of the decision process.

[0046] All of the steps S37-S40 are followed in any case by a step S41, in which the user profile is one more time checked, whether the user is to be notified by a proper notification in a step S42 about the presence of a multimedia message MM and, moreover, probably about the performed handling of it, or not. In both cases, the flow is ended until another MMSNotify message will be received.

[0047] It is mentioned, that the reply message sent by the terminal MS according to one of the steps S37-S40 of Fig. 3 is received by the multimedia messaging service center MMSC in the step S22 of Fig. 2. Further, this reply message contains in any way every information needed for the multimedia messaging service center MMSC to act according to the terminal originated decision on the delivery of the multimedia message MM.

[0048] It is noted again, that the examples depicted by Figs. 2 and 3 are not limiting the invention, and the range of choices for the delivery of the multimedia message has been set out above in greater detail. According to the present invention, a further refinement and/or modification of the flow-charts of Figs. 2 and 3 can easily be obtained along the lines of the description as set out above.

[0049] As a further alternative within the second embodiment, the signaling between the terminal and the multimedia messaging service center could be implemented with a single request-reply message pair. Stated in other words, the terminal could always reply to the MMSNotify message with a MMSNotifyReply message. In this case, the desired functionality of the terminal and the multimedia messaging service center can be achieved by allocating a control flag (e.g. in 2-bit representation) to each part of the multimedia message in said MMSNotifyReply message. If the value of the flag is either deliver, store, forward or discard, the terminal is able to inform the multimedia message service center with a single reply message how to handle each part of the multimedia message.

[0050] This kind of solution would allow a more flexible functionality. For example, it is fully apparent that, according to this alternative, it would be possible to in-

struct the multimedia messaging service center with one reply message to treat each part of the multimedia message independent and separated from the other parts, so that some parts can be delivered to the terminal, some parts can be forwarded to an internet email address etc.

[0051] However, this provides that the multimedia message is clearly defined in parts and that the multimedia messaging service center is able to handle each part separated.

[0052] According to the second embodiment, there arise the following further advantages:

[0053] The terminal capabilities and user profile information do not have to be maintained in the multimedia messaging service center, whereby both the storage and processing capacities of the multimedia messaging service center are not consumed, rather being left for other objects.

[0054] Furthermore, the information does not have to be delivered each time upon predetermined conditions to keep the information stored in the multimedia messaging service center valid. Therefore, no extra signaling is caused between the terminal and the multimedia messaging service center. In conclusion, it is guaranteed that the information is always up to date and no traffic cluttering appears due to update signaling.

[0055] Still further, no extra amount of processing has to be done in the multimedia messaging service center. Since it can be expected that the structure of the multimedia messaging service center can be left on a less complex level according to the second embodiment, i. e. the implementation of the multimedia messaging service center becomes simpler and its performance requirements decrease, there might be reasons why this embodiment could be preferable.

[0056] As is described above, the present invention proposes a method for delivering messages in a communication network consisting of at least one terminal and a messaging functionality, said method comprising the steps of receiving a message MM for said terminal MS by said messaging functionality MMSC; sending a notification MMSNotify about the presence of said message MM from said messaging functionality MMSC to said terminal MS; deciding by said terminal MS due to its capabilities CAP and current user profile UP how to handle said received message MM; replying by said terminal MS to the notification sent by said messaging functionality MMSC, therewith instructing according to the result of said decision step; and handling said message MM by said messaging functionality MMSC according to said instructions.

[0057] It should be understood that the above description and accompanying figures are only intended to illustrate the present invention by way of example only. The preferred embodiments of the present invention may thus vary within the scope of the attached claims.

Claims

1. A method for delivering messages in a communication network comprising at least one terminal (MS) and a messaging functionality (MMSC), said method comprising the steps of
 - receiving a message (MM) for said terminal (MS) by said messaging functionality (MMSC);
 - deciding by said messaging functionality (MMSC), based on a content, size and type of said message as well as on information concerning capabilities (CAP) of said terminal and the user profile (UP) of a subscriber related to said terminal (MS), all of which are at the same time available to said messaging functionality, how to handle a message (MM) for said terminal (MS) received by said messaging functionality (MMSC); and
 - handling said message (MM) by said messaging functionality (MMSC) according to the result of said decision step,**characterized in that**
 - said information concerning the capabilities (CAP) of the terminal (MS) and a current user profile (UP) thereof are submitted by said terminal (MS) to said messaging functionality (MMSC) upon the occurrence of a predetermined condition which is at least one of the following events a login of said terminal (MS) into said network, a change of connection conditions of said terminal (MS), a context activation or the change of a context condition, a user profile (UP) creation or a user profile (UP) modification, a terminal originated traffic or a terminal terminated traffic, a request of said messaging functionality (MMSC), a notification of said messaging functionality (MMSC) concerning the presence of a new message (MM) to said terminal (MS), and a notification of said messaging functionality (MMSC) concerning the content, type and size of a new message (MM) to said terminal (MS).
2. A method according to claim 1, further comprising the step of storing said information in said messaging functionality (MMSC).
3. A method according to claim 1, wherein the result of said decision step can at least reside in that said message (MM) for said terminal (MS) is delivered completely, partly or modified to said terminal (MS), that said message (MM) is discarded, that said message (MM) is forwarded to another terminal, or that said message (MM) is stored in said messaging functionality (MMSC).
4. A method according to claim 1, wherein said information concerning said capabilities (CAP) of said terminal (MS) comprises at least one of the following: a display type of said terminal (MS), a keyboard type of said terminal (MS), codecs supported by said terminal (MS), a memory size of said terminal (MS), an electrical connection of said terminal (MS) to other devices, or external accessory attachment to said terminal (MS).
5. A method for delivering messages in a communication network comprising at least one terminal (MS) and a messaging functionality (MMSC), said method comprising the steps of
 - receiving a message (MM) for said terminal (MS) by said messaging functionality (MMSC); and
 - sending a notification (MMSNotify) about the presence of said message (MM) from said messaging functionality (MMSC) to said terminal (MS), wherein said notification at least indicates a content, size and type of said message;**characterized by further comprising the steps of**
 - deciding by said terminal (MS), based on a content, size and type of said message as well as on capabilities (CAP) of said terminal (MS) and the user profile (UP) of a subscriber related to said terminal (MS), all of which are at the same time available to said terminal, how to handle said received message (MM);
 - replying automatically by said terminal (MS) to the notification sent by said messaging functionality (MMSC), therewith instructing according to the result of said decision step; and
 - handling said message (MM) by said messaging functionality (MMSC) according to said instructions.
6. A method according to claim 5, wherein the result of said decision step can at least reside in that said message (MM) for said terminal (MS) is delivered completely, partly or modified to said terminal (MS), that said message (MM) is discarded, that said message (MM) is forwarded to another terminal, or that said message (MM) is stored in said messaging functionality (MMSC).
7. A method according to claim 5, wherein said notification (MMSNotify) about the presence of said message (MM) from said messaging functionality (MMSC) to said terminal (MS) further notifies about at least contents, types and size of said message (MM).
8. A method according to claim 7, wherein said terminal (MS) replies to said messaging functionality (MMSC) in the course of the signaling by sending a notification reply message which contains a control flag for each part of said message (MM), and the value of said control flag could be either deliver, modify, store, forward or discard.
9. A messaging functionality device comprising receiving means adapted to receive messag-

es (MM) and information;

processing means adapted to process received information data and messages (MM);

storing means;

sending means adapted to send information and messages (MM), respectively, to a terminal (MS),

characterized in that

said messaging functionality device is adapted to perform any one of the methods according to claims 1 to 4.

10. A terminal device comprising

receiving means adapted to receive messages (MM) and information;

processing means adapted to process received information data and messages (MM);

storing means;

sending means adapted to send information and messages (MM); respectively, to a messaging functionality (MMSC)

characterized in that

said terminal is adapted to perform any one of the methods according to claims 5 to 8.

Patentansprüche

1. Verfahren zum Ausliefern von Nachrichten in einem Kommunikationsnetzwerk mit zumindest einem Endgerät (MS) und einer Nachrichtenfunktionalität (MMSC), das Verfahren umfasst dabei die Schritte
Empfangen einer Nachricht (MM) für das Endgerät (MS) durch die Nachrichtenfunktionalität (MMSC);

Entscheiden durch die Nachrichtenfunktionalität (MMSC) auf der Grundlage von Inhalt, Größe und Art der Nachricht sowie auf der Grundlage von Informationen bezüglich der Leistungsfähigkeit (CAP) des Endgerätes und des Benutzerprofils (UP) eines Teilnehmers bezüglich des Endgerätes (MS), was alles gleichzeitig der Nachrichtenfunktionalität verfügbar ist, wie eine durch die Nachrichtenfunktionalität (MMSC) empfangene Nachricht (MM) für das Endgerät (MS) zu handhaben ist; und

Handhaben der Nachricht (MM) durch die Nachrichtenfunktionalität (MMSC) gemäß dem Ergebnis des Entscheidungsschritts,

dadurch gekennzeichnet, dass

die Informationen bezüglich der Leistungsfähigkeit (CAP) des Endgerätes (MS) und dessen momentanes Benutzerprofil (UP) durch das Endgerät (MS) an die Nachrichtenfunktionalität (MMSC) beim Auftreten einer vorbestimmten Bedingung übermittelt werden, die zumindest eine der nachstehend aufgeführten Ereignisse ist: ein Einbuchen des Endgerätes (MS) in das Netzwerk, ein Wechsel von Verbindungszuständen des Endgerätes (MS), eine

Kontextaktivierung oder der Wechsel eines Kontextzustandes, eine Benutzerprofilierung (UP) oder eine Benutzerprofilabwandlung (UP), ein von dem Endgerät veranlasster Verkehr oder ein an das Endgerät gerichteter Verkehr, eine Anfrage der Nachrichtenfunktionalität (MMSC), eine Benachrichtigung der Nachrichtenfunktionalität (MMSC) bezüglich der Gegenwart einer neuen Nachricht (MM) an das Endgerät (MS), und eine Benachrichtigung der Nachrichtenfunktionalität (MMSC) bezüglich des Inhaltes, der Art und der Größe einer neuen Nachricht (MM) an das Endgerät (MS).

2. Verfahren nach Anspruch 1, ferner mit dem Schritt des Speicherns der Informationen in der Nachrichtenfunktionalität (MMSC).

3. Verfahren nach Anspruch 1, wobei das Ergebnis des Entscheidungsschrittes zumindest darin bestehen kann, dass die Nachricht (MM) für das Endgerät (MS) vollständig, teilweise oder abgewandelt an das Endgerät (MS) ausgeliefert wird, dass die Nachricht (MM) verworfen wird, dass die Nachricht (MM) an ein anderes Endgerät weitergeleitet wird, oder dass die Nachricht (MM) in der Nachrichtenfunktionalität (MMSC) gespeichert wird.

4. Verfahren nach Anspruch 1, wobei die Informationen bezüglich der Leistungsfähigkeit (CAP) des Endgerätes (MS) zumindest eine Anzeigart des Endgerätes (MS), eine Tastaturart des Endgerätes (MS), durch das Endgerät (MS) unterstützte Codier-Decodier-Einrichtungen, eine Speichergröße des Endgerätes (MS), eine elektrische Verbindung des Endgerätes (MS) mit anderen Vorrichtungen, oder äußere Zubehörgeräte an dem Endgerät (MS) umfasst.

5. Verfahren zum Ausliefern von Nachrichten in einem Kommunikationsnetzwerk mit zumindest einem Endgerät (MS) und einer Nachrichtenfunktionalität (MMSC), das Verfahren umfasst dabei die Schritte
Empfangen einer Nachricht (MM) für das Endgerät (MS) durch die Nachrichtenfunktionalität (MMSC); und

Senden einer Benachrichtigung (MMSNotify) über die Gegenwart der Nachricht (MM) von der Nachrichtenfunktionalität (MMSC) an das Endgerät (MS), wobei die Benachrichtigung zumindest Inhalt, Größe und Art der Nachricht bezeichnet;

gekennzeichnet durch die weiteren Schritte

Entscheiden durch das Endgerät (MS) auf der Grundlage von Inhalt, Größe und Art der Nachricht sowie auf Grundlage der Leistungsfähigkeit (CAP) des Endgerätes (MS) und dem Benutzerprofil (UP) eines Teilnehmers bezüglich des Endgerätes (MS), was alles gleichzeitig dem Endgerät verfügbar ist, wie die empfangene Nachricht (MM) zu

handhaben ist;

automatisches Antworten **durch** das Endgerät (MS) auf die **durch** die Nachrichtenfunktionalität (MMSC) gesandte Benachrichtigung, womit gemäß dem Ergebnis des Entscheidungsschritts angewiesen wird; und

Handhaben der Nachricht (MM) **durch** die Nachrichtenfunktionalität (MMSC) gemäß den Anweisungen.

6. Verfahren nach Anspruch 5, wobei das Ergebnis des Entscheidungsschrittes zumindest darin bestehen kann, dass die Nachricht (MM) für das Endgerät (MS) vollständig, teilweise oder abgewandelt an das Endgerät (MS) ausgeliefert wird, dass die Nachricht (MM) verworfen wird, dass die Nachricht (MM) an ein weiteres Endgerät weitergeleitet wird, oder dass die Nachricht (MM) in der Nachrichtenfunktionalität (MMSC) gespeichert wird.
7. Verfahren nach Anspruch 5, wobei die Benachrichtigung (MMSNotify) über die Gegenwart der Nachricht (MM) von der Nachrichtenfunktionalität (MMSC) an das Endgerät (MS) ferner zumindest über Inhalte, Arten und Größe der Nachricht (MM) benachrichtigt.
8. Verfahren nach Anspruch 7, wobei das Endgerät (MS) der Nachrichtenfunktionalität (MMSC) im Verlauf der Signalisierung durch Senden einer Benachrichtigungsantwortnachricht antwortet, die ein Steuerungskennzeichen für jeden Teil der Nachricht (MM) enthält, wobei der Wert des Steuerungskennzeichens entweder Ausliefern, Abwandeln, Speichern, Weiterleiten oder Verwerfen sein kann.
9. Nachrichtenfunktionalitätsvorrichtung mit
 - einer Empfangseinrichtung, die für den Empfang von Nachrichten (MM) und Informationen angepasst ist;
 - einer Verarbeitungseinrichtung, die zur Verarbeitung von empfangenen Informationsdaten und Nachrichten (MM) angepasst ist;
 - einer Speichereinrichtung;
 - einer Sendeeinrichtung, die zum Senden von Informationen bzw. Nachrichten (MM) an ein Endgerät (MS) angepasst ist,**dadurch gekennzeichnet, dass**
 - die Nachrichtenfunktionalitätsvorrichtung zur Durchführung eines der Verfahren gemäß den Patentansprüchen 1 bis 4 angepasst ist.
10. Endgerätevorrichtung mit
 - einer Empfangseinrichtung, die für den Empfang von Nachrichten (MM) und Informationen angepasst ist;
 - einer Verarbeitungseinrichtung, die zur Verarbeitung von empfangenen Informationsdaten und

Nachrichten (MM) angepasst ist;

einer Speichereinrichtung;
einer Sendeeinrichtung, die zum Senden von Informationen bzw. Nachrichten (MM) an eine Nachrichtenfunktionalität (MMSC) angepasst ist, **dadurch gekennzeichnet, dass**

das Endgerät zum Durchführen eines der Verfahren gemäß der Patentansprüche 5 bis 8 angepasst ist.

Revendications

1. Procédé pour délivrer des messages dans un réseau de communication comprenant au moins un terminal (MS) et une fonctionnalité de messagerie (MMSC), ledit procédé comprenant les étapes consistant à :

recevoir un message (MM) pour ledit terminal (MS) par ladite fonctionnalité de messagerie (MMSC) ;
décider par ladite fonctionnalité de messagerie (MMSC), sur la base d'un contenu, d'une taille et d'un type dudit message ainsi que d'informations concernant des capacités (CAP) dudit terminal et le profil d'utilisateur (UP) d'un abonné associé audit terminal (MS), l'ensemble de ceux-ci étant simultanément à la disposition de ladite fonctionnalité de messagerie, comment traiter un message (MM) pour ledit terminal (MS) reçu par ladite fonctionnalité de messagerie (MMSC) ; et
traiter ledit message (MM) par ladite fonctionnalité de messagerie (MMSC) conformément au résultat de ladite étape de décision,

caractérisé en ce que

lesdites informations concernant les capacités (CAP) du terminal (MS) et un profil d'utilisateur actuel (UP) de celui-ci sont soumises par ledit terminal (MS) à ladite fonctionnalité de messagerie (MMSC) lors de l'apparition d'une condition prédéterminée qui est au moins l'un des événements suivants : une ouverture de session dudit terminal (MS) dans ledit réseau, un changement de conditions de connexion dudit terminal (MS), une activation de contexte ou le changement d'une condition de contexte, une création de profil d'utilisateur (UP) ou une modification de profil d'utilisateur (UP), un trafic provenant d'un terminal ou un trafic aboutissant à un terminal, une demande de ladite fonctionnalité de messagerie (MMSC), une notification de ladite fonctionnalité de messagerie (MMSC) concernant la présence d'un nouveau message (MM) audit terminal (MS), et une notification de ladite fonctionnalité de messagerie (MMSC) concernant le contenu, le type et la taille d'un nouveau message

(MM) audit terminal (MS).

2. Procédé selon la revendication 1, comprenant en outre l'étape consistant à mémoriser lesdites informations dans ladite fonctionnalité de messagerie (MMSC). 5
3. Procédé selon la revendication 1, dans lequel le résultat de ladite étape de décision peut résider au moins dans le fait que ledit message (MM) pour ledit terminal (MS) est délivré complètement, partiellement ou modifié audit terminal (MS), que ledit message (MM) est rejeté, que ledit message (MM) est acheminé vers un autre terminal, ou que ledit message (MM) est mémorisé dans ladite fonctionnalité de messagerie (MMSC). 10 15
4. Procédé selon la revendication 1, dans lequel lesdites informations concernant lesdites capacités (CAP) dudit terminal (MS) comprennent au moins l'une des suivantes : un type d'écran dudit terminal (MS), un type de clavier dudit terminal (MS), des codecs supportés par ledit terminal (MS), une taille de mémoire dudit terminal (MS), une connexion électrique dudit terminal (MS) à d'autres dispositifs, ou la fixation d'un accessoire externe audit terminal (MS). 20 25
5. Procédé pour délivrer des messages dans un réseau de communication comprenant au moins un terminal (MS) et une fonctionnalité de messagerie (MMSC), ledit procédé comprenant les étapes consistant à : 30
 - recevoir un message (MM) pour ledit terminal (MS) par ladite fonctionnalité de messagerie (MMSC) ; et 35
 - envoyer une notification (MMSNotify) concernant la présence dudit message (MM) de ladite fonctionnalité de messagerie (MMSC) audit terminal (MS), dans lequel ladite notification indique au moins un contenu, une taille et un type dudit message ; 40

caractérisé en ce qu'il comprend en outre les étapes consistant à : 45

 - décider par ledit terminal (MS), sur la base d'un contenu, d'une taille et d'un type dudit message ainsi que de capacités (CAP) dudit terminal (MS) et du profil d'utilisateur (UP) d'un abonné associé audit terminal (MS), l'ensemble de ceux-ci étant simultanément à la disposition dudit terminal, comment traiter ledit message (MM) reçu ; 50
 - répondre automatiquement par ledit terminal (MS) à la notification envoyée par ladite fonctionnalité de messagerie (MMSC), en donnant 55

avec la réponse des instructions conformément au résultat de ladite étape de décision ; et traiter ledit message (MM) par ladite fonctionnalité de messagerie (MMSC) conformément auxdites instructions.

6. Procédé selon la revendication 5, dans lequel le résultat de ladite étape de décision peut résider au moins dans le fait que ledit message (MM) pour ledit terminal (MS) est délivré complètement, partiellement ou modifié audit terminal (MS), que ledit message (MM) est rejeté, que ledit message (MM) est acheminé vers un autre terminal, ou que ledit message (MM) est mémorisé dans ladite fonctionnalité de messagerie (MMSC).
7. Procédé selon la revendication 5, dans lequel ladite notification (MMSNotify) concernant la présence dudit message (MM) de ladite fonctionnalité de messagerie (MMSC) audit terminal (MS) informe en outre au moins d'un contenu, d'un type et d'une taille dudit message (MM).
8. Procédé selon la revendication 7, dans lequel ledit terminal (MS) répond à ladite fonctionnalité de messagerie (MMSC) au cours de la signalisation en envoyant un message de réponse à la notification qui contient un indicateur de contrôle pour chaque partie dudit message (MM), et la valeur dudit indicateur de contrôle pourrait être soit délivrer, modifier, mémoriser, acheminer ou rejeter.
9. Dispositif de fonctionnalité de messagerie comprenant :
 - des moyens de réception adaptés pour recevoir des messages (MM) et des informations ;
 - des moyens de traitement adaptés pour traiter des données d'informations et des messages (MM) reçus ;
 - des moyens de mémorisation ;
 - des moyens d'envoi adaptés pour envoyer des informations et des messages (MM), respectivement, à un terminal (MS),

caractérisé en ce que

ledit dispositif de fonctionnalité de messagerie est adapté pour effectuer l'un quelconque des procédés selon les revendications 1 à 4.
10. Dispositif de terminal comprenant :
 - des moyens de réception adaptés pour recevoir des messages (MM) et des informations ;
 - des moyens de traitement adaptés pour traiter des données d'informations et des messages (MM) reçus ;
 - des moyens de mémorisation ;

des moyens d'envoi adaptés pour envoyer des informations et des messages (MM), respectivement, à une fonctionnalité de messagerie (MMSC),

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caractérisé en ce que

ledit terminal est adapté pour effectuer l'un quelconque des procédés selon les revendications 5 à 8.

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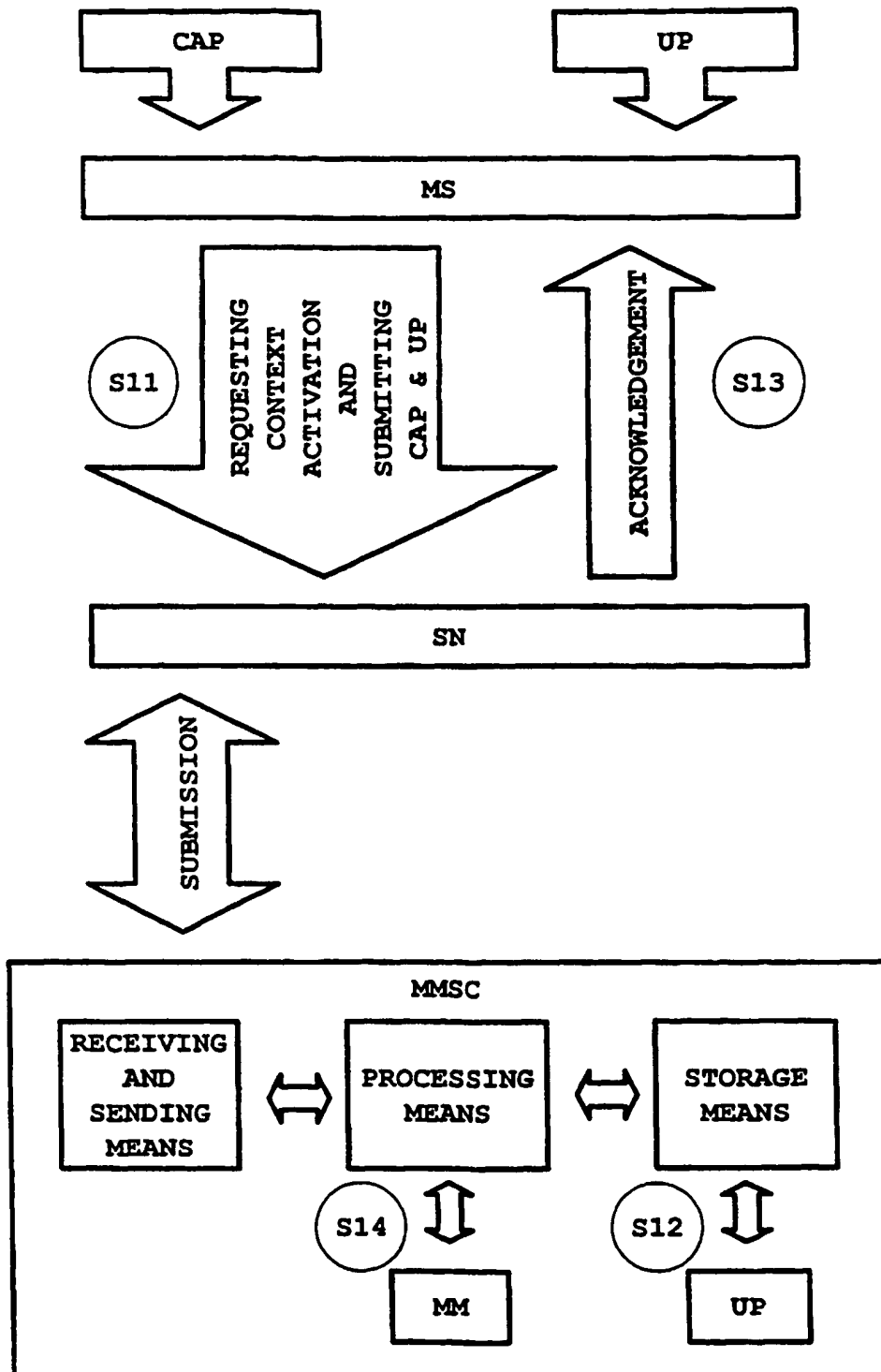


FIG. 1

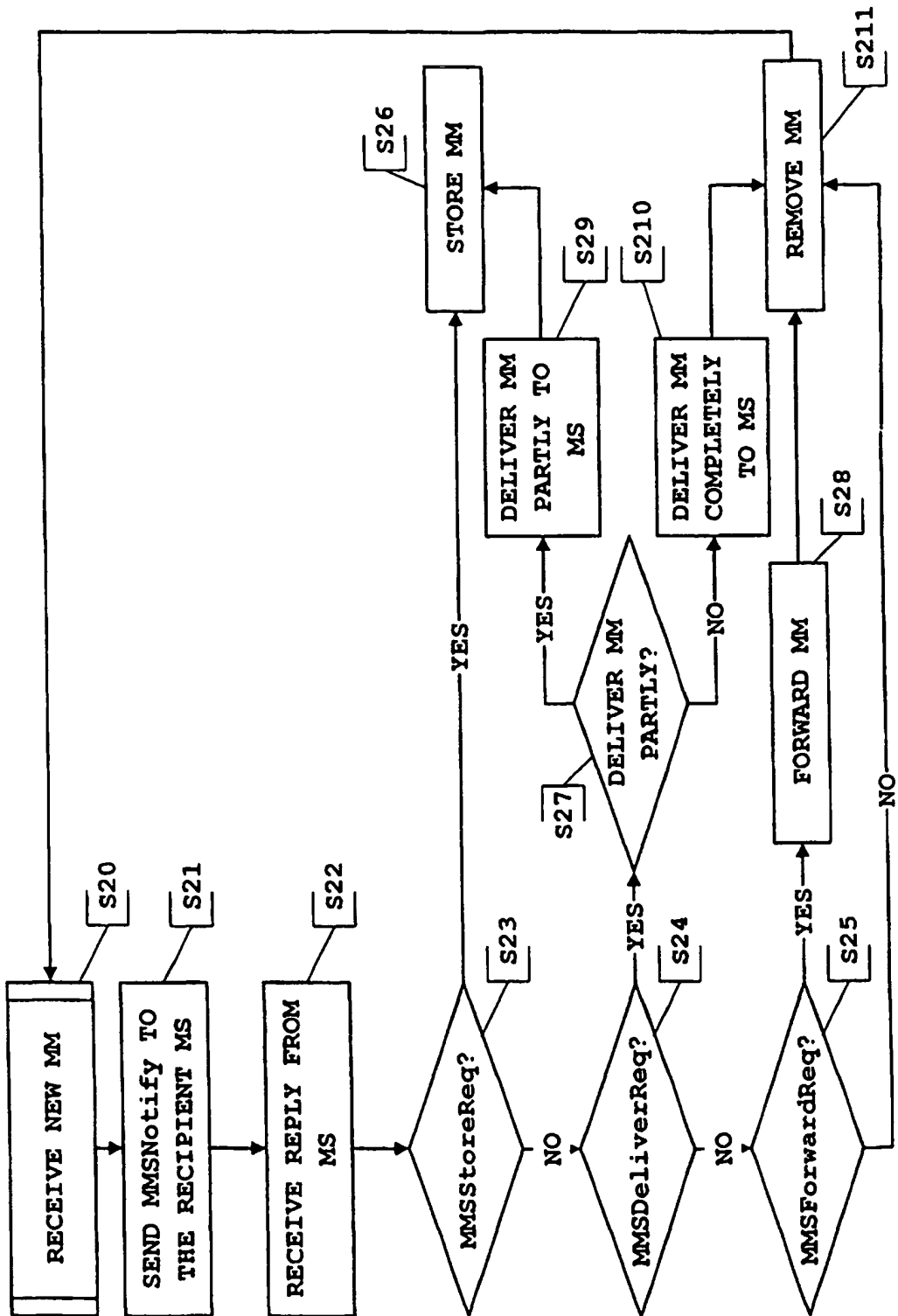


FIG. 2

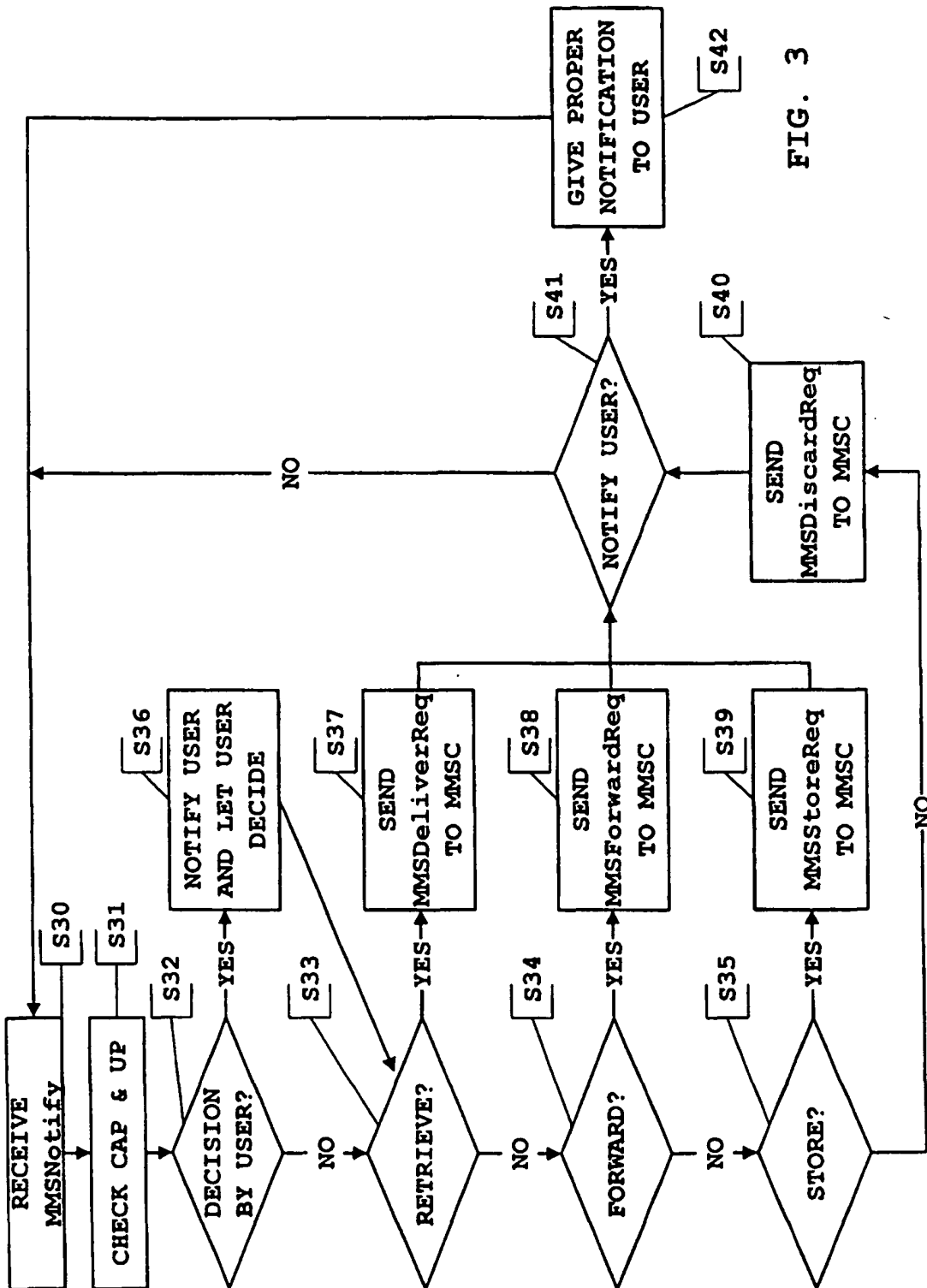


FIG. 3

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